Time Series of Transport and Currents on the Chukchi Shelf

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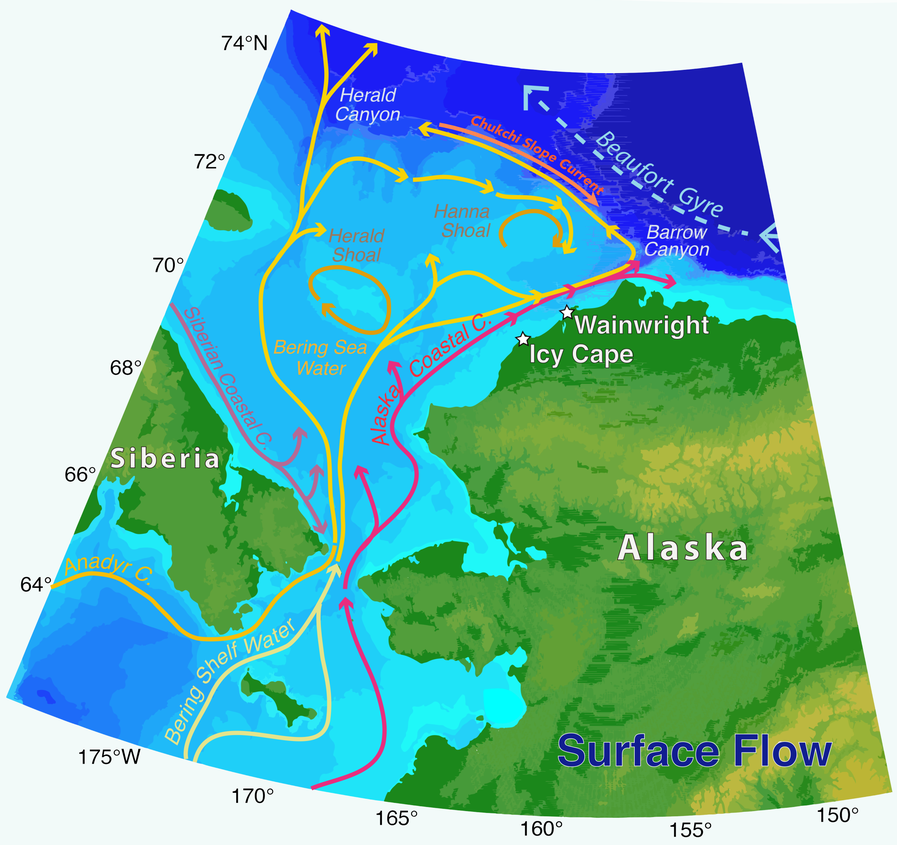
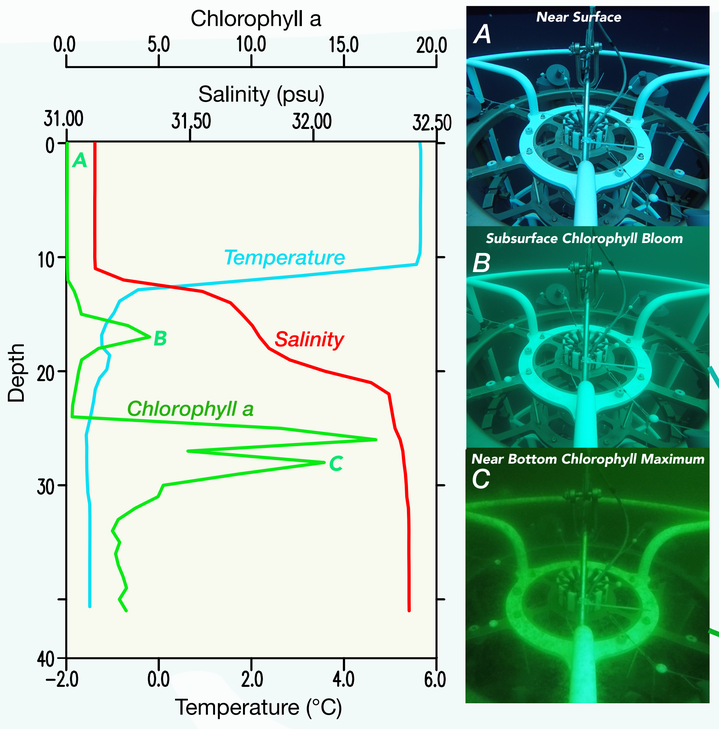
Chukchi Sea Currents

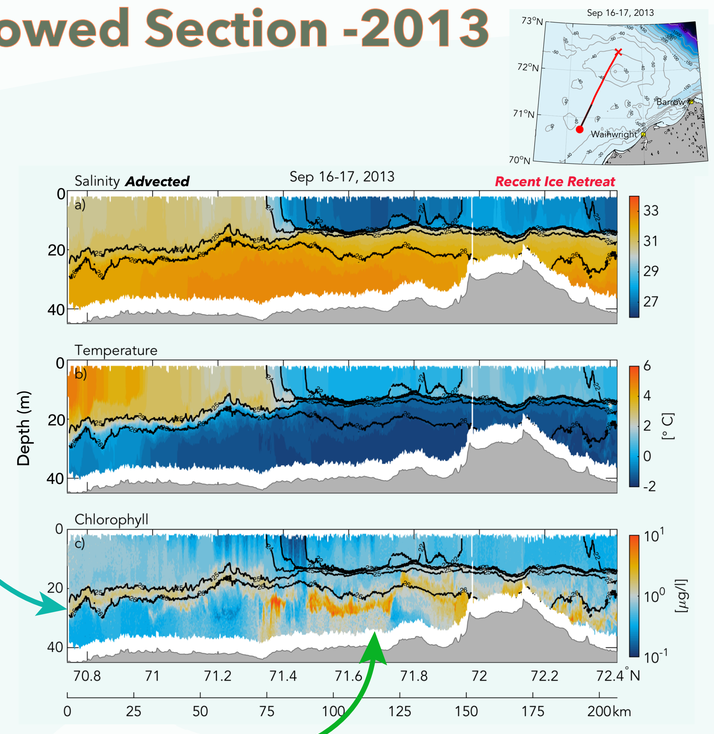


EcoFOCI (NOAA/PMEL) in partnership with BOEM, has measured currents and water properties at multiple mooring sites on the Chukchi shelf and slope since 2010. These data are combined with ~40 satellite-tracked drifters. Data are examined for flow patterns and transport on the eastern Chukchi shelf.

Profile, Chlorophyll

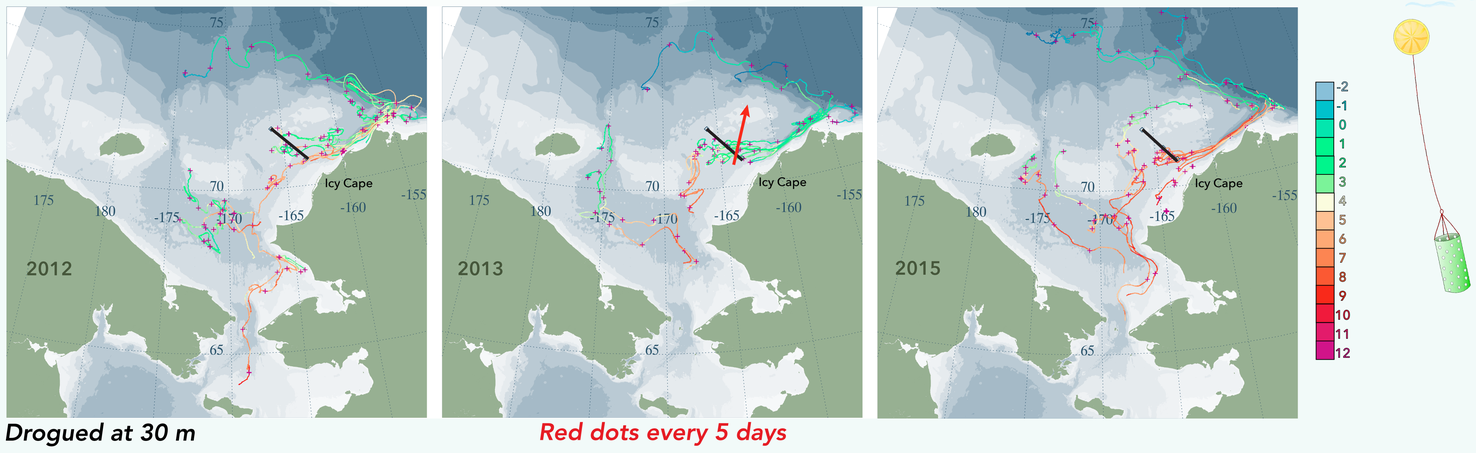


Towed Section -2013



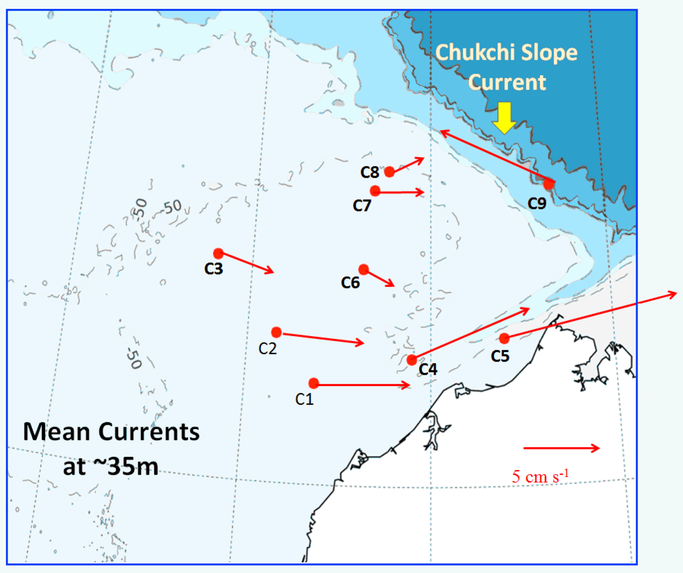
1. Flow in Central Channel & Herald C., 2. Eastbound flow at Icy Cape, 3. Intensified flow in Barrow C., 4. Chukchi Slope Current

Satellite-Tracked Drifters



Drogued at 30 m *Red dots every 5 days*

Mean Currents from 9 Mooring Sites

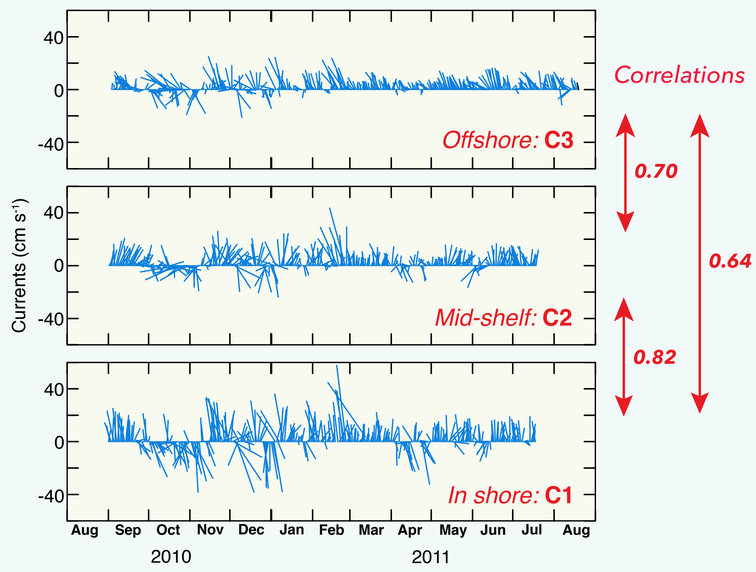


The Data:

Mooring Deployments:

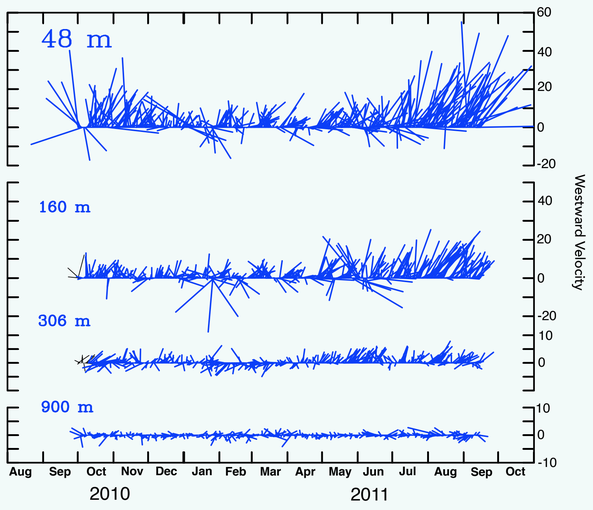
- 2010-2011: C1, C2, C3
- 2011-2012: C1,C2,C3
- 2012-2013: C2, C4
- 2013-2014: C1,C2, C4,C5,C6,C7
- 2014-2015: C1,C2, C4,C5,C6,C7, C8, C9

Currents: Icy Cape



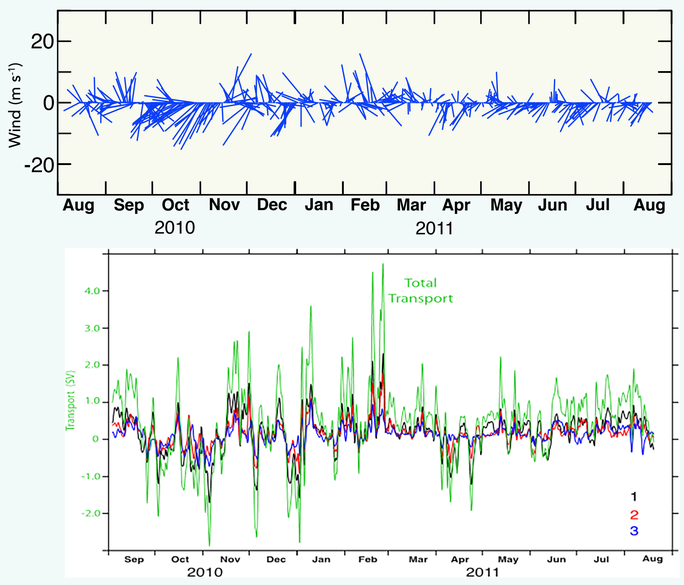
Currents at the Icy Cape line are well correlated and decrease with distance from shore.

Chukchi Slope Current C9

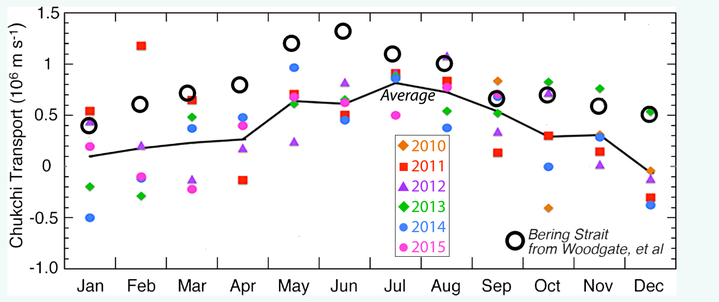


The Chukchi Slope Current is confined to the upper 500 m.

Transport across Icy Cape Line



While net transport is ENE, the variability is dominated by local winds.



Annual Transport (x 10^6 m^3 s^{-1})

2010-2011 - 0.50
2011-2012 - 0.35
2012-2013 - 0.36
2013-2014 - 0.48
2014-2015 - 0.30

Average = 0.40 x 10^6 m^3 s^{-1} (Sv)
(about 1/2 Bering Strait transport)